



# Specifications

# GEN SERIES FAST DIFFERENTIAL DIGITIZERS

## Summary

For ultra fast signals, the 25 MS/s and 100 MS/s high speed digitizer boards are equipped with four channels sampling at incredible high speed.

With selectable anti-aliasing filtering and 14-bit (100 MS/s) or 15-bit resolution (25 MS/s), these inputs turn the GEN series into an extremely fast transient recorder. Enhanced resolution mode increases input resolution for both models to 16-bit at lower speeds. The inputs feature a fully differential amplifier offering good common mode rejection and enabling off ground measurements.

## Analog input section

<b># of channels</b>	4 per board
<b>Input type</b>	differential
<b>Coupling</b>	AC: -3 dB @ 1.6 Hz ± 10 % DC / GND
<b>Connector</b>	2 x metal BNC, outer shell grounded
<b>Ranges</b>	± 20 mV to ± 100 V Full Scale in 1, 2, 5 steps
<b>Offset</b>	automatic, equal to span; max. 50 % in the ± 100 V range
<b>Impedance</b>	2x 1 MΩ with: 21 pF for ranges ≤ ± 1 V 25 pF for ranges > ± 1 V

<b>Bandwidth<sup>(1)</sup></b>	<b>100 MS/s:</b> 25 MHz @ -3 dB <b>25 MS/s:</b> 10 MHz @ -3 dB
<b>MSE</b>	0.1 % FS ± 0.1 mV
<b>Offset error</b>	0.1 % FS ± 0.1 mV
<b>Noise (RMS)</b>	0.05 % FS ± 0.1 mV
<b>CMRR</b>	≥ 70 dB for ranges ≤ ± 1 V ≥ 60 dB for ranges > ± 1 V

<b>CM Voltage</b>	4 Vpk for ranges ≤ ± 1 V 250 Vpk for ranges ≥ ± 20 V 40 Vpk for all other ranges
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<b>Overload</b>	250 V peak protected
<b>Recovery time</b>	< 10 % error: 20 ns < 0.1 % error: 40 ns at input range ± 0.5 V, with 200 % overload

<b>Rise time<sup>(1)</sup></b>	<b>100 MS/s:</b> 14 ns @ max. BW <b>25 MS/s:</b> 35 ns @ max. BW
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## Acquisition

<b>Sample rate</b>	25 MS/s or 100 MS/s per channel
<b>Sampling</b>	single ADC per channel, synchronous between all channels
<b>AD-Resolution</b>	<b>100 MS/s:</b> 14-bit (0.006 %) <b>25 MS/s:</b> 15-bit (0.003 %) 16-bit enhanced resolution for sample rates ≤ 10 MS/s
<b>AA Filter</b>	6th order Bessel low pass at 10 MHz
<b>Digital filter</b>	6th order Bessel (IIR) low pass from 5 MHz to 50 kHz in 12 steps

## Triggering

Each channel has a dual-level trigger detector with selectable hysteresis.

<b>Pre/post Rate</b>	0 to full memory length up to 100 triggers per second, zero re-arm time
<b>Resolution</b>	16-bit (0.0015%), each level

## Transient memory

<b>Per board</b>	<b>100 MS/s:</b> 1800 MS <b>25 MS/s:</b> 64 MS
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## Acquisition modes

<b>Recorder</b>	for continuous acquisition
<b>Scope</b>	for repetitive phenomena
<b>Transient</b>	for intermittent events, single or A-B-A timebase

## Data storage

<b>Recorder</b>	spooled directly to harddisk of control PC; unlimited file size or duration.
<b>Scope</b>	store in transient memory
<b>Transient</b>	store in transient memory, single or A-B-A timebase



(1) Analog bandwidth specifications. Values will differ when the digital IIR filter is used at the same time.

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